

CLAIMS

- 1 1. A method comprising
2 in connection with a mobile wireless subnetwork including
3 multiple radio network controllers and multiple radio nodes,
4 associating a session established for an access terminal with a
5 serving radio network controller,
6 maintaining the association as the access terminal moves
7 from the coverage area of one radio node to the coverage area of
8 another radio node within the same subnetwork, and
9 routing access channel packets from an access terminal
10 having an existing session to the serving radio network controller
11 by determining the IP address of the serving radio network
12 controller using a session identifier.
- 1 2. The method of claim 1 wherein the routing is performed by
2 an RN.
- 1 3. The method of claim 1 wherein the routing is performed by
2 a broker radio network controller in the subnetwork.
- 1 4. The method of claim 3 also including, in an RN,
2 forwarding a received access channel packet to the broker radio
3 network controller.
- 1 5. The method of claim 3 wherein the serving radio network
2 controller and the broker radio network controller are connected by
3 a high-speed LAN.

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1 6. The method of claim 4 wherein the serving radio network
2 controller and the broker radio network controller are connected by
3 a high-speed LAN.

1 7. The method of claims 1, 2, 3, 4, 5 or 6, wherein the session
2 identifier comprises the Universal Access Terminal Identifier
3 (UATI) of the IS-856 standard.

1 8. The method of claims 1, 2, 3, 4, 5, 6 or 7, also including
2 routing by the radio node of packets received from an access
3 terminal without an existing session to a default RNC with whom
4 the radio node is associated.

1 9. The method of claim 1 or 2, wherein a radio node receives
2 paging requests from more than one radio network controller.

1 10. The method of claim 1 or 2, wherein a radio node receives
2 forward link traffic channel packets from more than one radio
3 network controller.

1 11. The method of claim 1 or 2, wherein a radio node sends
2 reverse link traffic channel packets to more than one radio network
3 controller.

1 12. The method of claim 1 or 2, wherein traffic channel radio
2 resources are managed in the radio nodes and a radio network
3 controller requests radio resources from a radio node before adding
4 any of its sectors to a traffic channel.

1 13. The method of claim 1 or 2, wherein said radio network
2 controllers reside in different locations and are connected via a
3 metropolitan-area network.

1 14. The method of claim 1, 2 or 3, in which the session
2 association is transferred from one radio network controller in one
3 subnetwork to another radio network controller in another
4 subnetwork based upon a predetermined criterion.

1 15. The method of claim 14 wherein the session transfer is
2 triggered by the access terminal upon detection of a subnet change.

1 16. The method of claim 12 wherein the session transfer is
2 triggered by the network.

1 17. The method of claim 1, 2 or 3 also including
2 at the serving radio network controller, selecting a packet
3 data serving node to serve the access terminal.

1 18. The method of claim 1 also including
2 at the serving radio network controller, using a mobility
3 manager to maintain a current position of the access terminal.

1 19. The method of claims 1, 3, 4, 5 or 6 also including using an
2 RNC Resource Control Agent to assign sessions to radio network
3 controllers.

1 20. The method of claim 19, wherein the RNC Resource
2 Control Agent resides on a separate server.

1 21. The method of claim 1, 2 or 3, wherein an RNC Resource
2 Control Agent also determines the association between the RN's
3 and their default RNC's.

1 22. The method of claims 19 wherein the RNC Resource
2 Control Agent also performs load balancing in assigning sessions
3 to radio network controllers.

1 23. The method of claims 19, wherein the RNC Resource
2 Control Agent also selects a new RNC in network-initiated
3 dormant handoffs.

1 24. The method of claim 19, wherein the Radio Resource
2 Control Agent function is distributed among the radio network
3 controllers and radio nodes, and the radio network controllers and
4 the radio nodes continuously communicate resource information to
5 each other to enable individual network nodes to make session
6 assignment decisions on their own.

1 25. The method of claim 19, wherein the Radio Resource
2 Control Agent also maintains session information for all sessions
3 under its control.

1 26. The method of claim 1, 2 or 3 wherein the radio network
2 controllers also include a PDSN function.

1 27. The method of claim 26, wherein the PDSN function
2 includes the Simple IP, Mobile IP and AAA client functions.

1 28. Apparatus comprising
2 a radio node in a mobile wireless subnetwork that includes
3 multiple radio network controllers and multiple radio nodes,
4 the radio node being configured to route access channel
5 packets from an access terminal having an existing session to a

6 serving radio network controller by determining the IP address of
7 the serving radio network controller using a session identifier.

1 29. The apparatus of claim 28 in which the radio node is also
2 configured to forward a received access channel packet to the
3 broker radio network controller.

1 30. The apparatus of claim 28 in which the session identifier
2 includes the Universal Access Terminal Identifier (UATI) of the
3 IS-856 standard.

1 31. The apparatus of claim 28 in which the radio node is also
2 configured to route packets received from an access terminal
3 without an existing session to a default RNC with whom the radio
4 node is associated.

1 32. The apparatus of claim 28 in which the radio node is
2 configured to receive paging requests from more than one radio
3 network controller.

1 33. The apparatus of claim 28 in which the radio node is
2 configured to receive forward link traffic channel packets from
3 more than one radio network controller

1 34. The apparatus of claim 28 in which the radio node is
2 configured to send reverse link traffic channel packets to more than
3 one radio network controller.